A STUDY ON THE IMPACT OF INVESTORS' SENTIMENT ON STOCK RETURNS OF SELECTED INDUSTRIAL INDICES OF BSE INDIA

Synopsis

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INTRODUCTION

Classical financial theory believes that the market is efficient, all investors have perfect rationalities, and the security price has adequately reflected all the information in the market, so the asset price cannot be affected by investor sentiment. However, with the development of the financial market, many "anomalies" cannot be explained. Many studies began to doubt the assumption of market efficiency, and behavioural finance emerged. Behavioral finance rejected the assumption of investors' perfect rationality and holds that investors tend to be affected by their own sentiment while making decisions, which leads to bias of irrationalities in investment decision. The influence of investors' future expectation can lead to the over or under-pricing of stocks, and thus affect pricing models. Consequently, investor sentiment may be a systematic risk factor which affects stock returns.

Investors' Sentiment

Investor sentiment refers to the overall attitude of investors toward the financial market. It represents the feeling, mood, belief, or expectation of investors and may have an influence on their decision making. Sentiment could be induced by noisy information, limited trading experience, or is a response to pseudo-signals convincing investors to contain new information. It may stimulate investors to trade at illogical moments and either to over or underestimate the stock performance. Due to the complexity of the market and of investors, several biases can influence investors at once. Sentiment is therefore also called a "top- down approach" as it is a measure that sums multiple biases into one variable.

Investor Sentiment Proxies

One important challenge in investigating the role of investor sentiment in the stock market is that it is not easy to measure investor sentiment, whether for the whole market or individual firms. As investor sentiment is not directly measurable, it is essential to identify and quantify appropriate proxies. In the behavioural finance there are two measures of investor sentiment. A direct measure based on surveys and an indirect measure constructed with the use of market data. The direct approach is rather subjective and can get only a portion of investor feedbacks.

Several studies apply market-based proxies of investor sentiment including highest-lowest spreads, market turnover, price earning (P/E) ratio, margin purchase to market value (MM) ratio and short sales to margin borrowing (SM) ratio (Yaser. B (2015)) and trading volume, net fund flow, IPOs return,

equity debt ratio, and put-call ratio. Several recent studies such as Chen, De, Hu, and Hwang (2014) indeed validate the view that investor sentiment proxies measured based on online activities and the content of social media platforms can explain stock price movements well.

Bombay Stock Exchange of India

The Bombay Stock Exchange is the first and leading stock exchange of India, which obtained permanent recognition in 1956 from the Government of India under the Securities Contracts (Regulation) Act 1956. BSE's pivotal and pre-eminent role in the development of the Indian capital market is widely recognized throughout the country. BSE provides an efficient and transparent market for trading in equity, debt instruments and derivatives. It has a nation-wide reach and has always been on par with the international standards. Keeping in view the larger interests of the investors, the systems and processes are designed to safeguard market integrity and enhance transparency in operations.

Sensex

The BSE's Index, SENSEX, is India's first stock market index that enjoys a specific identity and is tracked worldwide. It is an index of leading 30 stocks representing 12 major sectors. The SENSEX is constructed on a 'free-float' methodology and is sensitive to market sentiments and market realities. Apart from the SENSEX, BSE offers 21 indices, including 12 sectoral indices. The SENSEX is the guide to all the investors of the country. In one way it regulates the inflow and outflow of funds into the companies listed in the exchange.

REVIEW OF LITERATURE

Literature review means to find other articles, books, or information about the subject of research. One of the purposes is to show that the subject is worthy of researching because others have also researched it. It also gives you a place where to begin to write and research the subject.

This section presents the studies carried out so far, as reviewed from the last few years' published research. These studies have been categorized into two groups:

- International Reviews
- National Reviews

TABLE 1 – INTERNATIONAL REVIEWS

Sr. No.	Author	Year	Topic	Objectives	Findings
1.	Vuong, B., Suzuki, Y.	2020	Impact of financial development on sentiment-return relationship : Insight from Asia-Pacific markets	The objective of this research is to investigate the relationship Between investor sentiment and subsequent stock returns.	The empirical results of the study indicate the sentiments are important for short period of time as compared to longer span. The investor's sentiment can predict returns of six months more accurately.
2.	Haritha, P., Rishad, A.	2020	An empirical examination of investor sentiment and stock market volatility: evidence from India	This paper tries to explore the role of irrational investors' sentiments in determining stock market volatility.	The findings revealed that irrational sentiment significantly causes excess market volatility. Furthermore, the study indicates that the asymmetrical aspects of an inefficient market contribute to excess volatility and returns.
3.	Kim, K., Ryu, D.,	2020	Predictive Ability of Investor Sentiment for The Stock Market	This study investigates investor sentiment's ability to forecast future stock returns in the short and long terms.	Investor sentiment affects simultaneous stock returns. Stock prices are influenced by the overreactions of sentiment traders, whose trading strategies are based on their beliefs, expectations, or moods. Investor sentiment predicts stock returns until a month has passed, indicating that stocks overvalued by investor sentiment revert to their fundamental values over the next month.
4.	Rehman, M., Apergis, N.,	2019	Do global sentiment shocks spill over towards emerging and frontier markets?	This study aims to investigate the impact of sentiment shocks based on US investor sentiments.	The results of the Markov regime switching method suggests that US sentiment, bullish and bearish market shocks act as a main contributor for inducing variation in EFA stock market returns. The study's non-parametric robustness results highlight an asymmetric relationship across the mean series, whereas a symmetric

					relationship across variance series. The study also reports Thailand as the most sensitive market to global sentiment shocks.
5.	Rupande, L., Muguto, H. and Muzindutsi, P.	2019	Investor sentiment and stock return volatility: Evidence from the Johannesburg Stock Exchange	This study investigated the link between investor sentiment and volatility on the Johannesburg Stock Exchange market using the All-Share Index.	The results show that there is a significant connection between investor sentiment and stock return volatility which shows that behavioral finance can significantly explain the behavior of stock returns on the Johannesburg Stock Exchange. It is, thus, recommended that due to the inadequacies of popular asset pricing models such as the Capital Asset Pricing Model, consideration should be made towards augmenting these asset pricing models with a sentiment risk factor.
6.	Rashid, A., Chughtai, S., Fayyaz, M.	2017	The Impact of Investor Sentiment on Return of Different Industries in Pakistan	The objective of this paper is to examine whether investor sentiment exerts a differential impact on stock returns across difference industries.	The findings of the shows that there is a significant relationship between investor sentiment and stock returns of firms traded on Pakistan Stock Exchange. Sentiment effect remains influential for stock returns of upcoming period. The nature of the4 relationnship between investor sentiment and stock returns varies across industries.
7.	Anusakumar, S., Ali R. and Wooi H.	2017	The Effect of Investor Sentiment on Stock Returns: Insight from Emerging Asian Markets	This paper examines the link between investor sentiment and stock returns in emerging Asian markets.	The findings of the study show that the Stock specific sentiment strongly and positively affects stock returns after controlling for firm characteristics. Overall, there is a positive relationship between market wide sentiment and returns but the relationship does not hold at the country level. Stock specific sentiment may have a greater

					influence on returns than market specific sentiment.
8.	Naik P., Padhi, P.	2016	Investor sentiment, stock market returns and volatility: evidence from National Stock Exchange of India	The objective of this paper is to explore the relationship between investor sentiment and stock return volatility using monthly data from National Stock Exchange (NSE).	Sentiment index significantly influences market excess returns. At the first glance it was found that sentiment has negative influence on the conditional volatility. The study reveals that positive and negative sentiments have asymmetric impacts on excess return volatility. The Granger causality results suggest a bi-directional causality between excess return and investor sentiment at the third lags.
9.	Almansour, B.	2015	The impact of market sentiment index on stock returns: an empirical investigation on Kuala lumpur stock exchange	To investigate the role of investor sentiment in the asset pricing mechanism by focusing on Malaysian stock market	The hypothesis that the effect of market sentiment index on stock return varies according to the size is rejected, while the effect of market sentiment index on stock return varies according to the risk and age are accepted
10.	Corredor, P., Ferrer, E. and Santamaria, R.	2015	The impact of investor sentiment on stock returns in Emerging markets. The case of Central European markets.	This paper tries to study the effect of investor sentiment on stock returns in three Central European markets: the Czech Republic, Hungary and Poland.	The results confirm that sentiment is a twofold (global and local) phenomenon, in which the global dimension has much greater impact than the local dimension, at least in the markets considered. Finally, the paper has shown that sentiment does not spread, at least to any significant degree, through the movement of capital between markets.
11.	Huang, C., Yang, X., and Sheng, H.	2014	An Empirical Study of the Effect of Investor Sentiment on Returns of Different	To study the effect of investor sentiments on return of selected industry.	The findings shows that the investor sentiment is Positively correlated with the industry return of the current period and negatively correlated with that of one lag period; We find that optimistic investor sentiment has a

			Industries		positive effect on stock returns of most industries, while pessimistic investor sentiment has no effect on them.
12.	Chen, H, Chong, T. and Yingni, S.	2014	A principal component approach to measuring investor sentiment in China	The objective of this paper is to provide a new measure of investor sentiment for China.	Sentiment index is positively associated with market turnover, number of new investor accounts, change in industrial production and money supply while negatively related to interest rate and exchange rate. A TAR model using the sentiment index as the threshold variable is estimated. Our results show that the Chinese stock market can be divided into three regimes: a high-return volatile regime, a low-return stable regime and a neutral regime.
13.	Uygur, U., Tas, O.	2014	The impacts of investor sentiment on different economic sectors: Evidence from Istanbul Stock Exchange	The aim of this study is to construct a model for evaluating the effects of investor sentiment on the conditional volatility	This study found that a change in investor sentiment has more influence on conditional volatility of industry, banking, and food and beverages sector indexes when compared with other sectors such as retail or telecommunication.
14.	Bolaman, O., Mandaci, P.	2014	Effect of Investor Sentiment on Stock Markets	To examine the relationship between investor sentiment and stock market by taking financial crisis period into account.	The findings reveal that the existence of co-integration, which is an indicator of a long-term relationship between variables, is proved. This is a significant insight showing that consumer confidence index is a critical factor which is in an interaction with stock markets.
15.	Chen, M., Chen, P., Chien, C.	2013	Asymmetric effects of investor sentiment on industry	To examine how industry returns are affected by both global and local market sentiments	The positive (negative) impact of global sentiment above (under) the threshold turns significant, indicating that global

			stock returns: Panel data evidence		optimism leads industry returns to be overvalued, while pessimism leads them to be undervalued. For local market sentiment, our results support that higher local sentiment enhances the returns of basic materials, telecommunications, and utilities Industries. The empirical results confirm that the nexus of industry returns, and investor sentiments is subject to change between different, sentimental intervals.
16.	Yoshinaga, C. & Junior, F.	2012	The Relationship between Market Sentiment Index and Stock Rates of Return: a Panel Data Analysis	This article analyses the relationship between market sentiment and future stock rates of return.	The results indicate a significant and negative relationship between the market sentiment index and the future rates of return. These findings suggest the existence of a reversion pattern in stock returns, meaning that after a positive sentiment period, the impact on subsequent stock returns is negative, and vice-versa.
17.	Dergiades, T.	2012	Do investors' sentiment dynamics affect stock returns? Evidence from the US economy	This paper tries to find out the non-linear causal linkage between investors' sentiment Dynamics and stock returns for the US economy.	Our empirical findings reveal that there is reasonable statistical evidence to support that sentiment embodies significant predictive power with respect to stock returns. This predictability of sentiment is primarily linked to the conditional variance of the stock returns.
18.	Baker, M. & Wurgler, J.	2007	Investor Sentiment in the Stock Market	The objective of this research paper is to develop an investor sentiment index related to stock market.	This paper outlines a "top down" approach to behavioral finance and the stock market. We take the origin of investor sentiment as exogenous and instead focus on its empirical effects. We show that it is quite possible to measure investor sentiment, and that waves of sentiment have clearly discernible,

					important, and regular effects on individual firms and on the stock market. Stocks that are difficult to arbitrage or to value are most affected by sentiment.
19.	Baker, M. & Wurgler, J.	2006	Investor Sentiment and the Cross-Section of Stock Returns	This paper tries to find out the cross-sectional effect of investor sentiment on stock returns	The researcher found, when sentiment is estimated to be high, stocks that are attractive to optimists and speculators and at the same time unattractive to arbitrageurs—younger stocks, small stocks, unprofitable stocks, non-dividend-paying stocks, high volatility stocks, extreme growth stocks, and distressed stocks—tend to earn relatively low subsequent returns

TABLE 2- NATIONAL REVIEWS

Sr. No.	Author	Year	Topic	Objectives	Findings
1.	Pandey, P., Sehgal, S.	2019	Investor sentiment and its role in asset pricing: An empirical study for India	The objective of this paper is to evaluate the relationship between investor sentiment and market performance.	The findings of the study reveals that the investor sentiment indices were found to be in long run Equilibrium relationship with market performance and the error correction version of the ARDL model shows that only our Composite Sentiment index leads the market, confirming its predictive power.
2.	Rehman, M.	2013	Investor's Sentiments and Stock Market Volatility: empirical evidence from emerging stock market	To highlight the impact of investor's sentiments on the stock market returns	In the lights of the above results, it can be concluded that the sentiments of the investors do play an important role in the stock market returns in the Karachi stock exchange. So, the effect of investor's sentiments on the stock market returns even in the

					weak efficient form of market is observable.
3.	Kumari, J.	2019	Investors Sentiment and Stock Market Liquidity: Evidence from an Emerging Economy	To investigate the relationship between the stock market liquidity and investors sentiment.	The study showed the significant role of investors sentiment in predicting the stock market liquidity. The past psychological biases and herding of investors are associated with the volatility of liquidity through the direct and indirect channels.

NEED OF THE STUDY

It has been observed that previous literature are related to the study of investors' sentiment considering only few market proxies and a major stock exchange at one time. Few researchers have studied the impact of investors' sentiment on stock returns at industry level as well as on market level at the same time. In Indian context there is no such study that deals with finding the impact of investors' sentiment on stock returns of Bombay Stock Exchange and its Industrial Indices. Through this study titled "A STUDY ON THE IMPACT OF INVESTORS' SENTIMENT ON STOCK RETURNS OF SELECTED INDUSTRIAL INDICIES OF BSE INDIA", the researcher will try to answer research questions like:

- Which kinds of industry's stocks are more easily affected by investor sentiment?
- Does Investors' Sentiment in different time-period have effect on the returns of Specific Industry?
- Does Investors' Sentiment have the same impact on the stock returns at both the levels- Industry as well as Market?

Thus, this study will be beneficial in following aspects:

- This study will help the investors in making sound investment decision by taking Investors' Sentimental effects into consideration.
- With the availability of the sentiment index through this research, the investors sentiment in the market can be constantly monitored and by knowing the factors that influence this index, effective measures can be taken to improve investor sentiment.

- This study will help investment managers who can use such investment strategies to invest, for the stock that are hard to value and riskier to arbitrage in order to gain more return when the market follows a downward trend.

OBJECTIVES OF STUDY

The following will be considered as the main objectives of the study:

1. To construct the Investors' Sentiment Index at Industry Level.
2. To construct the Investor's Sentiment Index at Market Level.
3. To examine the impact of Investors' Sentiment on Stock returns both at Industry level and Market level.
4. To know the investors' perception regarding the influence of investor sentiments on stock returns.

RESEARCH HYPOTHESIS

To achieve the objectives of the study, following hypotheses will be considered:

H_{01} : There is no significant impact of investors' sentiment on stock returns at Industry level.

H_{02} : There is no significant impact of investors' sentiment on stock returns at Market level.

H_{03} : Investors' sentiment proxy variables do not have any cross-sectional relationship with each other.

RESEARCH METHODOLOGY

This study will consider both primary and secondary data; accordingly, research methodology is also divided into two parts:

For Secondary Data

Sample Size and Selection Criteria

To achieve the proposed objectives, the researcher will take Bombay Stock Exchange SENSEX Index and its various Industrial Indices. These Industrial Indices will be selected based on the composition of companies in SENSEX. All companies which are the part of Sensex as on 01 April, 2012 and part of Sensex throughout the research period will be selected for constructing Market Index.

Industries will be selected on the basis of the nature of the companies in Sensex as on 01 April, 2012.

In selected Industries, five companies from each industry will be considered on the basis of Market Capitalisation as on 01 April, 2012.

Duration of the Study

To conduct this study, the researcher will consider 10 financial years, *viz.* 2012-13 to 2021-2022.

Collection of Data

Data related to Sensex, selected Industrial Indices and Proxies will be collected from official website of the Bombay Stock Exchange and from the annual reports, official websites of the selected companies.

Data Analysis and Presentation Tools

Stock Return will be the dependent variable and Investor Sentiment Index (based on market Proxy variables such as stock turnover, advance-decline ratio, etc.) will be the independent variable. For achieving different objectives, various statistical tools will be used i.e., descriptive statistics, Pearson Correlation Coefficient test, Regression, Principal Component Analysis, etc. will be applied. The statistical tool will be applied as per the nature of the data. The researcher will use Excel, EViews, and SPSS to analyse the data. For the presentation of data, various presentation tools like tables, Bar Diagrams, pie charts, histograms, line charts, etc. will be used.

FOR PRIMARY DATA

Sample Size and Selection Criteria

Researcher will consider a sample of at least 200 Retail Investors. Investors will be selected on the basis of purposive sampling (investors having at least 3 years' experience of share market will be considered).

Collection of Data

Primary data for the research will be collected through the structured Questionnaire which will be circulated to investors of the stock market.

Data Analysis and Presentation Tools

Collected data will be analysed by using various statistical tools like Percentages, Weighted Average, Chi-square test, etc. The statistical tool will be applied as per the nature of data. The researcher will use Excel, EViews and SPSS to analyse the data. For the presentation of data various presentation tools like tables, Bar Diagrams, pie-charts, histogram, line charts, etc. will be used.

TABLE 3 - OBJECTIVE-WISE RESEARCH METHODOLOGY

Sr.No.	Objective	Research Methodology
1.	To construct the Investors' Sentiment Index at Industry Level.	Industrial Level sentiment index will be created by taking proxies of selected companies which are the part of Industrial Indices using Principal Component Analysis.
2.	To construct the Investors' Sentiment Index at Market Level.	Market level sentiment index will be created using sentiment proxies and by taking such companies that form Sensex. Principal Component Analysis will be used for index creation.
3.	To examine the impact of Investors' Sentiment on Stock returns both at industry level and market level.	For attaining this objective, the researcher will analyze the impact of investors sentiment index (developed in objective one & two) on the returns of selected Industrial Indices and BSE SENSEX. Further the collected data will be analyzed by using appropriate statistical tools like Correlation, Regression etc.
4.	To know the investors' perception regarding the influence of investor sentiments on stock returns.	For achieving this objective, the researcher will serve the questionnaire to appropriate number of investors to select 200 retail investors. For analysis of the questionnaire Mean, Weighted Average, Chi-square Test etc. will be used.

TABLE 4 - PROPOSED CHAPTER PLAN OF THE STUDY

Chapter 1	Introduction
Chapter 2	Review of Literature
Chapter 3	Behavioral Finance and Investor Sentiment
Chapter 4	Construction of Investors' Sentiment Indices both at industry level and composite/market level.
Chapter 5	Analysis of the impact of investors' sentiment indices on the returns at industry and market level.
Chapter 6	Analysis of Investors' Perceptions regarding the impact of their sentiments on investment decision in stock market.
	Findings, Suggestions & Conclusion References Bibliography Appendix

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